STANDARDS FOR MICROFILMING

NORTH DAKOTA PUBLIC RECORDS

EFFECTIVE

JULY 1, 1991

INFORMATION TECHNOLOGY DEPARTMENT

STANDARDS FOR MICROFILMING
NORTH DAKOTA PUBLIC RECORDS

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

MICROFILM STANDARDS

For the production of microfilm, as with any other technical activity, standards are necessary to ensure that the product will perform satisfactorily for its users. For government records, users will include personnel in the creating agency and in other agencies of government, the general public, and, in some instances, researchers decades in the future. The standards which have been adopted by the State of North Dakota are widely accepted standards derived from those developed by the Association for Information and Image Management (AIIM) and the American National Standards Institute (ANSI). These standards are based on decades of experience and research by government agencies, the micrographics industry, and other private and public entities. Without these standards, users would not know what to expect with regard to film image or identification, quality control would not exist, the life expectancy and usefulness of the film would be unknown, and the readability and reproducibility of the film would be dependent upon trial and error--and probably be unknown until it was too late to rectify the problem. In short, a microfilm program requires standards in order to achieve satisfactory results.

The microfilm standards adopted by the State of North Dakota provide a means to provide consistency and acceptable quality to ensure that the microfilming investment is not wasted. Some of the more important standards relate to the following:

1. Image density. To camera hobbyists, this is exposure or contrast and is usually judged by subjective viewing of the negative or print. Professional photographers and microphotographers measure this quality using an instrument called a densitometer to determine whether the image can be reproduced satisfactorily (either a microfilm use copy or a reader-printer paper copy) or even be read on a variety of microfilm readers. If the film is too light or too dark, it will not reproduce satisfactorily and the microfilm investment will have been wasted.

2. Image resolution. Less technically, this is "sharpness" or focus. The importance of this measure for textual materials reduced to the point where a letter-sized document is less than one-half inch in height is obvious. Precise charts filmed as a "target" on the microfilm provide a means for measuring the sharpness or resolution of the image using a microscope. Again, one's ability to read and reproduce the microfilmed materials depends upon satisfactory resolution.

3. Identification. Because microfilm is relatively easy to duplicate, must meet certain standards to be acceptable in a court of law, and requires equipment to read or reproduce, it is important that the materials contained on the microfilm are clearly identified. Clear, consistent identification makes microfilm easier to use for everyone, thereby increasing efficiency.

4. Stability or permanence. How long microfilm retains it usefulness physically is dependent upon a number of factors including the type of film used initially, how it is processed or developed, how it is used, how and where it is stored, and the types of containers used for storage. Microfilm may last for hundreds of years or for only a very short time, depending upon the factors listed.

Failure to meet the standards established in these and other related areas can result in excessive costs for the State of North Dakota. These costs can take the form of lost information, lost time, or the simple waste of money spent on doing something improperly. The production of high-quality microfilm requires careful adherence to standards, but does not add to costs. In fact, effective quality controls reduce retakes, save time in image retrieval and reproduction, and add to the utility of the microfilm. Quality pays!

Jerry Newborg, State Archivist

I. INTRODUCTION

Micrographics, as a part of a comprehensive records management program, is a vital tool used to manage efficiently the large volume of information generated and stored by North Dakota state and county offices. This booklet contains the standards for microfilming public records in the state of North Dakota. These standards encompass all microphotographic systems used by state agencies, including:

1. All micrographic services provided by the micrographics unit of the OMB Information Services Division;
2. All micrographic services performed by private vendors for state and county office. These services include microfilming of documents, processing and duplicating of microfilm, and all computer output microfilming; and
3. All microfilming services performed on equipment owned or leased by any state or county office including all microfilm cameras.

Standards used by the ISD Micrographics Unit are derived from standards developed by the Association for Information and Image Management, the American National Standards Institute, and the Thomas Handbook of Quality Control for the Microfilm Industry. Standards for microfilming North Dakota Public Records have been developed by the Office of Management and Budget, ISD Records Management Section, pursuant to Sections 54-46-10, 54-46-12, and 54-46.1-06, NDCC.

Pursuant to Sections 54-46.1-05 and 54-46.1-06, NDCC, all state agencies performing in-house micrographic services, and all vendors and service bureaus must follow the appropriate standards when microfilming public documents, and when processing or duplicating any microformat for state agencies. These standards are a requirement of the uniform system for record keeping for county offices as referenced in Section 54-46-12, NDCC.

All microfilm equipment utilized for filming public records, whether owned or leased by a state agency or by any vendor, must meet all minimum requirements as outlined in this publication.

Contact the ISD Records Management Section at 224-3585 to register and obtain approvals for microfilm projects.

II. GENERAL REQUIREMENTS

A. Records Must Appear On A Records Retention Schedule.

All records to be microfilmed must be included on a records retention schedule developed in cooperation with the ISD Records Management Section. This schedule must have been approved after January 1, 1984. Only documents included on an approved records retention schedule will be authorized for microfilming. Contact the ISD Records Management Section to obtain information to place your records on a records retention schedule.

II. GENERAL REQUIREMENTS - cont:

B. Formatting Must Be Approved.

The film format must be approved by the ISD Micrographics Unit. Film format will be approved only after the agency submits a Microfilm Feasibility Study, SFN 2000, which is available from the ISD Records Management Section.

C. Document Preparation

Document preparation means organizing the records in the exact order in which the documents must appear on the microfilm. It is your agency's responsibility to complete all document preparation. If the documents are not prepared properly, they will not be filmed. You must contact the ISD Micrographics Units at 224-2230 to obtain instructions **before** preparing documents.

Document preparation must be completed as follows:

1. Contact the ISD Micrographics Unit to determine the format to be used and whether the documents will be automatically or manually filmed.

   Provide the ISD Micrographics Unit with a random sampling of the records to be filmed so this decision can be made.

2. Microfilm Divider Forms SFN 2053 (see Appendix G) are available from Central Supply. Complete one divider for each file to be filmed. All information used to locate a file should be entered on the Microfilm Divider under "Description".

3. Remove all staples, paper clips, etc., from the documents. Tape torn edges of papers with transparent tape. Folded papers should be unfolded.

4. File folders will not be filmed. All information needed to located a record should be placed on a Microfilm Divider SFN 2053. Do not send any file folders with the records to be filmed. The records should be stacked flat in boxes in the order in which they are to be filmed, with dividers at the start of each separate file.

5. Remove all duplicate information from the files or it will be filmed, which will increase the cost to your agency.

6. Pages larger than 11"x14" should be cut to a maximum of 11"x14". Large documents, such as maps, plans, plats, etc., should be cut into strips no wider than 13" by the length of the document. For example: a 26"x57" drawing can be cut into two 13"x57" strips. After being cut to uniform size, large documents should be placed immediately following the file's Microfilm Divider, if feasible.

II. GENERAL REQUIREMENTS - cont:

7. Documents smaller than 8 1/2"x11" require special preparation. Please contact ISD Micrographics for further instructions.

8. Records consisting of two-sided documents should be clearly flagged since those documents must be filmed manually. If the entire file consists of two-sided documents, this should be clearly indicated on the Microfilm Divider. If a file consists of both one- and two-sided documents, those that are two-sided should be clearly flagged, and whenever feasible, placed immediately following the file's Microfilm Divider.

If you have any questions about preparing documents for filming, contact the ISD Micrographics Unit.

D. All microfilming must comply with Section III. Standards for Filming and Storing Public Records.

E. All roll microfilm that has fog on or near an image will be declared out of standards and will be returned to the agency and must be refilmed.

All microfiche that has fog on or near an image or title will be declared out of standards and will be returned to the agency and must be refilmed.

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS

A. General

The integrity of public records which have been microfilmed must be maintained by ensuring that the microfilm records serve the purposes for which the original records were created. The ISD Micrographics Unit will check all microfilm formats for quality and to ensure that all the standards are met. Before destruction of the paper records, the office responsible for the records being filmed must review the microfilm and verify that the documents are satisfactorily reproduced on the microfilm. Microimages must contain all of the significant details shown on the original documents.

B. Film Type

1. Silver Halide Films (Silver Gelatin Films): The film stock used to make microphotographic copies of long-term, permanent, or archival records must be safety-base permanent record film as specified in ANSI PH1.25-1984 (R1985) and ANSI IT9.1-1989.

2. Nonsilver Films (Nonsilver Gelatin Films): Long-term, permanent, or archival records will not be microfilmed on nonsilver film unless the documents are also filmed or duplicated using a silver film that

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

meets the specifications discussed in section B-1. Records which are not archival and have a retention value of less than 25 years may be microfilmed using nonarchival films.

3. Nonarchival films: Films which do not meet all requirements of ANSI PH1.25-1984 (R1985) and ANSI IT9.1-1989 are not considered to be archival microfilms. This includes dry silver microfilm and "updatable" microfilm.

C. Requirements for Original Film (Format/Security film)

1. Security Film: The security copy of all long-term, permanent, or archival records must be silver halide film as specified in section B-1. The security film of roll microfilm must be silver halide in roll form, the security copy of microfiche must be silver halide in microfiche form; and the security copy of computer output microfiche must be silver halide film in microfiche form.

2. The security film of positive image documents must be in negative image. The security film of negative image documents must be in positive image. The security film of computer output microfiche must be in negative image.

D. Storage of Original Film (Requirements)

1. Reels and Cores: Microfilm stored in roll form must be wound on cores or on reels of the type specified in AIIM MS29-1987 or ANSI/AIIM MS34-1990. The materials used must be noncorroding, such as plastic compounds or nonferrous metals. Steel material used for storage purposes is permissible, provided the reels are protected by lacquer, enamel, tinning, or some other corrosion-resistant finish. Plastics or lacquers that might give off reactive fumes, peroxides, or exudations during storage must not be used. All material used to retain the film must meet the specifications of ANSI PH1.43-1985 and ANSI IT9.2-1988.

2. Storage Containers: The microfilm must be stored in a closed container made of an inert material such as metal, plastic that does not give off reactive fumes, peroxides, or exudations during storage, or acid-free paper. All paper containers, such as microfiche envelopes, aperture card stock, etc., must be acid free and must comply with all specifications of ANSI IT9.2-1988.

3. Gaseous Impurities, Mixing of Film Types: Gaseous impurities such as sulfur dioxide, nitrous oxide, ammonia, peroxide, and hydrogen sulfide which may cause deterioration of microfilm must be removed from the air. Silver-gelatin microfilm must not be stored with other types of film because gases given off by the nonsilver-gelatin microfilm may damage or destroy silver-gelatin microfilm.

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

E. Use of Original Film

1. The original camera film (as outlined in section B-1) containing images of long-term, permanent, or archival documents must never be used for reference purposes. Only negative or positive copies should be used for reference purposes.

2. Measures must be taken to keep microfilm clean and unscratched during the inspection and duplication processes.

3. Original film, images, or titles (as specified in section B-1) must never be altered or obliterated by hole punching, scratching, etching, or any other means. Adhesive labels and film pens will not be allowed.

F. Inspection of Original Film

At approximately two-year intervals, a one percent sample of rolls of microfilm and microfiche selected at random must be inspected. For each biennial inspection, a different lot sample must be chosen, with some overlapping to determine if any changes have occurred since the previous inspection. The film must be inspected for mold or fungus, excessive brittleness, film curl or discoloration, adherence of the emulsion to the base, evidence of adhesion, and the presence of blemishes or defects in the film as a result of aging. A rereading of resolution targets and a remeasurement of the film density must be done. Storage containers must be inspected for evidence of rust and corrosion. If deterioration of any sample is found, a complete inspection of (1) all microfilm of all formats located within the storage area and (2) all microfilm processed during the same time period in which the deteriorating film was processed must be performed.

Agencies who store their own original microfilm and microfiche are responsible to inspect a random sample of those originals at two-year intervals.

G. Deteriorating Film

All instances of deteriorating microfilm must be reported immediately to the ISD Micrographics Unit. Deteriorating microfilm must be promptly removed from the storage facility. If all images are still legible, a silver-halide duplicate must be created from the original and refiled in place of the original. If images have been destroyed, appropriate measures must be taken to insure the safety of all remaining images and to reasonably recreate any lost documentation. All silver-halide duplicates must meet all appropriate standards before they will be accepted by the ISD Micrographics Unit in lieu of the original.

H. Processing

1. Methylene Blue Test Required

Silver-gelatin film used to make microphotographic copies of long-term, permanent, or archival records must be processed so the

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

residual thiosulfate ion concentration is within archival limits. Thiosulfate is a chemical used in developing microfilm. When not adequately removed by washing during processing, such residue can consume the emulsion of the film and result in permanent damage.

All microfilm processing facilities utilized by state and county offices must perform methylene blue testing to measure the residual thiosulfate on microfilm developed on each processor. The methylene blue testing method measures the concentration of a blue dye that is formed during the testing procedure. The amount of dye indicates the amount of residual thiosulfate remaining on the film.

All methylene blue testing must conform to the specifications of ANSI PH4.8-1985. Residual thiosulfate ion concentration must be greater than zero but must not exceed 1.4 micrograms per square centimeter in a clear area. A "clear area" is that portion of the film which has been processed, but not exposed to light. This clear area must conform to the specifications for Dmin as indicated in Section K, #3.

All methylene blue tests must be done within two weeks of processing. If reversal processing is used, it must be full photographic reversal and not the halide-type reversal (ANSI/AIIM MS1-1988).

All microfilm processing facilities, including privately-owned vendors, utilized by state and county offices must submit evidence of methylene blue testing to the ISD Micrographics Unit for each processor being used including microfilm, microfiche, and computer output microfiche camera/processing units. Test results must be submitted for each week in which any long-term, permanent, or archival public records are processed. Test results must be submitted only for the processing equipment used to process the microfilm containing public records.

If an agency contracts with a vendor for micrographic services, that vendor is considered the primary vendor. If the vendor utilizes another service to process the microfilm, the responsibility for submitting methylene blue test results remains with the primary vendor.

It is the responsibility of the state agency (and the micrographics vendors, if used) to show complete compliance with ANSI IT9.1-1989 and to provide the ISD Micrographics Unit with methylene blue test results to attest to the archival quality of processing.

All methylene blue testing must be conducted under valid testing conditions. In order to conduct a valid test for archival quality, all testing must proceed as follows:

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

a. The microfilm must be processed in a production (not laboratory) environment.
b. The results must be verifiable by a third party, if verification is requested within the two-week period.
c. The time of the test must be selected at random. Testing must take place during different times of the day and on different days of the week, with variations between the time and volume of film processed and the replacement of chemistry and other consumable supplies, such as water.
d. The testing must be performed using the practices normally followed for operating the processing equipment such as changing of chemicals and water, and routine cleaning of the processor.
e. The testing must be performed at least one time between any chemical changes.

2. Unsatisfactory Methylene Blue Test

If the methylene blue test results yield a thiosulfate ion concentration of greater than 1.4 micrograms per square centimeter, all microfilm containing images of long-term or archival documents will be rejected from the date of the last acceptable test to the date of the next acceptable test. Please note that fine grain film must yield a thiosulfate ion concentration of less than .7 micrograms per square centimeter. Film which fails the methylene blue test must be refilmed at the expense of the processing laboratory.

I. Image Reduction Ratios

1. Roll Microfilm Cameras: A reduction ratio for roll microfilming of documents of 32 to 1 or less is preferred. A reduction ratio of greater than 32 to 1 may be used only if the micrographic system can maintain a satisfactory resolution (see "J. Image Resolution") at the greater reduction.

2. Source Document Microfiche: A reduction ratio for roll microfilming of documents of 24 to 1 or less is preferred. A reduction ratio of greater than 24 to 1 may be used only if the micrographic system can maintain a satisfactory resolution (see "J. Image Resolution") at the greater reduction.

3. Computer Output Microfilm: Computer output microfilm must be at a reduction ratio of 42 to 1 or 48 to 1.

J. Image Resolution

All microfilm systems filming public documents must be tested for resolution. This test must use a camera test chart as specified in

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

ANSI/AIIM MS23-1990 or ANSI/NMA MS17-1983. Camera test charts such as the Rotary Camera Test Chart ANSI/AIIM MS 113-1983, five Microcopy Resolution Test Charts ANSI AIIM MS303-1980, Planetary Camera Test Chart and ISO Test Chart No. 2, or an equivalent of these charts will be accepted.

All micrographic systems used for microfilming documents must produce a resolution with a minimum of 125 lines per millimeter (lines/mm). The resolution is determined by multiplying the number identifying the smallest pattern which can be distinguished or resolved by the reduction ratio of the microfilm.

When determining resolution, the line-count method will be used. A microscope with a magnification of 50X to 150X should be used when reading the camera test chart. In the line-count method, the person inspecting the film must be able to see and count five separate lines with absolute certainty. It is important that the inspector be able to distinguish the area between the lines, and only readings with a clear and definite separation will be accepted.

When reading the camera test chart, the film must be processed to the density standards specified in K. Image Density.

Computer output microfiche must produce a "quality index" of not less than 5.0 for the first generation microfiche measured as specified in ANSI/AIIM MS1-1988.

K. Image Density

All micrographic reproductions of documents must be tested to ensure that they meet the photographic background densities stated below. The density target sheet should always be a white sheet of paper the same size as the documents that are being filmed.

Microfilming projects that consist primarily of colored paper must be given special consideration when selecting a density target. Agencies that have colored documents to be microfilmed must contact the ISD Micrographics Unit before beginning the project. After the ISD Micrographics Unit examines a sample of the microfilming project, a decision will be made whether the density target for the project will be the same color as the majority of the documents in the microfilming project. A test must be run to determine the appropriate color to be used for the density target.

1. Source Document Microfilm: The background density of first generation negative microfilm must be maintained as nearly as practicable in the range of 0.90 to 1.20. Background density of less than 0.80 and greater than 1.30 will not be allowed unless the documents filmed fall clearly in the categories listed in ANSI/AIIM MS23-1990.

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

2. Computer Output Microfilm: The background density of first generation computer output microfilm must be 1.50 or greater.

3. Dmin: of unexposed, processed, clear based film must not exceed 0.10. When a tinted base film is used, an increase up to 0.20 will be accepted in the Dmin.

*NOTE: The ISD Micrographics Unit will accept an image density in the range of 0.70 to 1.40 for source document microfilm that does not have a long-term, archival or permanent retention period. This less than standard quality would only be allowed on a one-time basis, with the understanding that the next batch of microfilm must meet the established standards. The ISD Micrographics Unit will notify the agency when microfilm does not meet the standards and the agency will be responsible to correct the problem before the next batch of microfilm is processed.

L. Retakes and Splicing

Retakes or additions to any public records should be filmed on a new roll of microfilm or on a new microfiche. All retakes must be indexed on the film and labeled as a retake or update by using a retake target and by labeling the carton or storage container. In addition, when using roll microfilm, the roll number and file must be cross-indexed on the microfilm carton label where the refilmed or updated records would normally be filed. Retakes must be labeled on the microfilm carton label by writing RETAKES in capital letters before the file name in different colored ink.

The ISD Micrographics Unit will not accept roll microfilm where images were spliced in sequence with the roll. Such a practice weakens the film and casts doubt on its integrity, should the film be required in a court of law.

M. Identification on Microfilm/Microfiche

1. Roll Microfilm: Records must be indexed in an organized manner for efficient retrieval. Generally, the documents will be organized in the same sequence in which they are filed in hardcopy form. Targeting as specified in Section 0-1 must be filmed in the proper sequence and microfilm divider targets must be used to separate each file.

2. Source Document Microfiche: All source document microfiche must include the following information in the heading:

   A. Fiche number;
   B. Agency name;
   C. Title of the record; (Record Series Title)

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

D. Record Control Number (if not a publication);
E. Index information;
F. Any information useful to the user if possible.

Targeting as specified in Section O-2 must be filmed in the proper sequence and microfilm dividers must be used to separate each file.

3. Computer Output Microfilm: All computer output microfiche must include the following information in the heading:

A. Fiche number;
B. Date;
C. Agency name;
D. Title of the Record; (Title of the Report)
E. Index information;
F. Other information useful to the user if possible.

4. Jacketed Roll Microfilm: All roll film in which the original microfilm is jacketed must meet all the standards for roll microfilm discussed in M-1. Plus it must have a small disclaimer (SFN 2051) appearing on each frame that is microfilmed. (If you need help in understanding where to position this document on your camera please contact the Micrographic's Unit.)

N. Identification on Filing Enclosures and Carton Labels.

All filing enclosures and carton labels must contain the following information:

1. Roll number or fiche number (if applicable);
2. Agency name;
3. Record series name or title;
4. Record control number;
5. Starting and ending index, including inclusive dates (if applicable);
6. Month and year of filming and background density levels.

O. Targeting

1. Roll microfilm: Proper identification targets must appear in each roll of microfilm. This is necessary to insure ready identification of and access to the information on the film and for the information to be legally admissible in a court of law. Examples of the targets required when microfilming public records are found in the appendix. The resolution and density targets must not be obstructed by anything. These targets must not be put inside a carrier of any sort. (Target 3 - Resolution Test Chart, Target 4 - Density Target, Target 7 - Density Target, and Target 8 - Resolution Test Chart). These targets should be kept out of the light when not in

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

use and the density target should be changed daily and anytime it gets soiled, torn or wrinkled during use. The following targets must be used for roll microfilm in the following sequence:

Target 1 - BEGINNING OF ROLL CERTIFICATE, SFN 2050 (Appendix A).

Target 2 - MICROFILM CERTIFICATE, SFN 2049 (Appendix B & C).

Target 2(A)-SFN 2049 (8-88) Planetary Camera (Appendix B), or
Target 2(B)-SFN 2049 (7-89) Rotary Camera (Appendix C), or
Target 2(C)-SFN 2051 (3-89) (Appendix D) is only for jacketed original microfilm.

This target identifies the state agency responsible for the records, the title of the record series, the record control number, the starting document (the first filmed on the roll), the reduction ratio, roll number, date microfilmed, and the camera operator.

Target 3 - RESOLUTION TEST CHART.
Target 3 (A) - used with planetary cameras (Appendix E), or
Target 3 (B) - used with rotary cameras (Appendix F).

Target 4 - DENSITY TARGET (Appendix G).
The density target is a blank sheet of white paper. For exceptions to this see "K. Image Density".

Target 5 - MICROFILM DIVIDER, SFN 2053 (Appendix H).
The microfilm divider identifies separations between individual records or files.

Target 6 - RETAKE TARGET, SFN 2055 (Appendix I).
This target identifies documents which are refilmed.

Target 7 - DENSITY TARGET (Appendix G).
The same density target used as Target 4 must be placed between the last document filmed on the roll and the resolution test chart target (Target 8).

Target 8 - RESOLUTION TEST CHART (Appendix E and Appendix F).
Use the appropriate resolution test chart after the density chart.

Target 8 (A) - used with planetary cameras (Appendix E), or
Target 8 (B) - used with rotary cameras (Appendix F).

Target 9 - MICROFILM CERTIFICATE, SFN 2049 (Appendix B & C).
The Microfilm Certificate must also be placed after the resolution test chart (Target 8). In addition to the information in Target 2,

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

this target should identify the ending file name or number and the number of exposures or frames on the film.

Target 10 - END OF ROLL CERTIFICATE, SFN 2050 (Appendix J). Fill in the end of roll number and film this target after the resolution target.

2. Microfiche: Proper identification targets must appear on each microfiche. This is necessary to insure ready identification and access to the information contained on the fiche and for it to be legally admissible in a court of law. Examples of the targets required when microfilming public records are found in the appendix. The resolution and density targets must not be obstructed by anything. These targets must not be put inside a carrier of any sort. (Target 2 - Resolution Test Chart and Target 3 - Density Target). These targets should be kept out of the light when not in use and the density target should be changed daily and anytime it gets soiled, torn or wrinkled during use. The following targets must be used for microfiche in the following sequence:

Target 1 - MICROFILM CERTIFICATE FOR STATE OF NORTH DAKOTA.
Target 1(A)-used when filming at a 24X reduction ratio, SFN 10933 (Appendix K).
Target 1(B)-used when filming at a 42X reduction ration, SFN 14367 (Appendix L).

This target identifies the state agency responsible for the records, the record control number, the record series title, the date of microfilming, and the camera operator.

Target 2 - RESOLUTION TEST CHART (Appendix E).

Target 3 - DENSITY TARGET (Appendix G).
The density target is a blank sheet of white paper. For exceptions to this see "K. Image Density".

Target 4 - MICROFILM DIVIDER, SFN 2053 (Appendix H).
The microfilm divider identifies separations between individual records or files.

Target 5 - RETAKE TARGET, SFN 2055 (Appendix I).
This target identifies documents which are refilmed.

Target 6 - CONTINUED TARGET, (Appendix M).
This target or a blank position will be left as the last position on all fiche in a series filmed on the fiche format. The exception to this is when a retake must be taken because of a missed document, in that case the blank space or the continued target would be left out and the document would be filmed in its place.

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

Target 7 - END TARGET, (Appendix N).
This target will be microfilmed immediately after the last document in a series (books, reports, bill numbers, pamphlets). The END TARGET will not be placed in the middle of a series between fiche #01 and the end. The word "END" will also appear on the last fiche of a series in the title under the fiche number.

The first three documents on all fiche filmed on the fiche formatted camera will be the Microfilm Certificate, Resolution Target, and Density Sheet.

The index in the title on each fiche will consist of a beginning page number and an ending page number. Example:

BOOK	FICHE #	LEGISLATIVE BILL NUMBERS	FICHE #
TITLE-PAGE 65	01	01 - 08	01
PAGE 66 - PAGE 89	02	08 - 08	02
PAGE 90 - PAGE 119	03	09 - 12	03
PAGE 120 - PAGE 122	04	12 - 35	04
	END		END

Any computer printouts not in electronic form that must be microfilmed on the fiche formatted camera must have the title match as close as possible to the title listed on the computer output microfiche currently being used to store the same type of information that is listed on these printouts.

All five targets must be used when microfilming public documents. Resolution charts may be purchased from either the Association for Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910; or from your local micrographics vendor.

P. Self-processing Cameras/Aperture Cards/Aperture Card Cameras

All self-processing cameras, including aperture card, strip filming, and self-processing microfiche units, must be tested for density, resolution, and minimum thiosulfate residue as indicated in the preceding sections. In addition, all aperture card camera/processors must meet all requirements for archival filing enclosures as specified in ANSI. Results of all tests must be submitted to the ISD Micrographics Unit as specified in "H. Processing".

Self-processing and aperture card cameras for archival documents to be retained longer than 25 years must be approved prior to the filming of the documents. Aperture cards do not produce an acceptable archival medium. If documents of archival or permanent value are produced on aperture cards, they must also be placed on a backup roll of silver-halide film processed under archival conditions.

III. STANDARDS FOR FILMING AND STORING PUBLIC RECORDS - cont:

Q. Unsatisfactory (Rejected) Microfilm

Film which does not meet these standards will be rejected, and the vendor or service bureau will be required to refilm the material at no additional cost to the public agency.

Film done by agencies that does not meet standards will be rejected and that agency will be required to refilm the material at their expense.

R. Destruction of Public Records after Microfilming

It is up to the agencies themselves to do the final verifying of each document before the destruction of any records. Paper (hardcopy) records may be disposed by state agencies after microfilming according to the procedures outlined in the North Dakota State Records Management Manual. Paper records may be disposed by county offices after microfilming as specified in the North Dakota County Records Management Manual. The following conditions must be met to dispose of the paper records:

1. The original micrographic record and the duplicate copy are properly stored on separate premises.

2. The destruction of the original paper records is not specifically prohibited by statute or by the agency's records retention schedule.

3. The disposal of records is accomplished according to the method stated in the approved records retention schedule.

IV. STANDARDS AND TECHNICAL REPORTS

Copies of standards and technical reports may be obtained from the Association for Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland, 20910.

ANSI/AIMM MS1-1988 RECOMMENDED PRACTICE FOR ALPHANUMERIC COMPUTER-OUTPUT MICROFORMS--OPERATIONAL PRACTICES FOR INSPECTION AND QUALITY CONTROL

ANSI/NMA MS17-1983 TEST CHART FOR ROTARY MICROFILM CAMERAS

ANSI/AIIM MS23-1990 PRACTICE FOR OPERATIONAL PROCEDURES/INSPECTION AND QUALITY CONTROL OF FIRST GENERATION SILVER-GELATIN MICROFILM OF DOCUMENTS

ANSI/NMA MS113-1983 ROTARY CAMERA TEST CHART
AIIM MS303-1980 PLANETARY CAMERA TEST CHART

ANSI/AIIM MS29-1987 CORES AND SPOOLS FOR RECORDING EQUIPMENT--DIMENSIONS

ANSI/AIIM MS34-1990 DIMENSIONS FOR REELS USED FOR 16MM AND 35MM MICROFILM

ANSI/AIIM MS48-1990 RECOMMENDED PRACTICE FOR MICROFILMING PUBLIC RECORDS ON SILVER-HALIDE FILM

ANSI IT9.1-1989 IMAGING MEDIA (FILM)--SILVER-GELATIN TYPE--SPECIFICATIONS FOR STABILITY

ANSI IT9.2-1988 IMAGING MEDIA--PHOTOGRAPHIC PROCESSED FILMS, PLATES, AND PAPERS--FILING ENCLOSURES AND STORAGE CONTAINERS

ANSI PH1.25-1984(R1989) PHOTOGRAPHY (FILM)--SAFETY PHOTOGRAPHIC FILM

ANSI PH1.43-1985 PHOTOGRAPHY (FILM)--PROCESSED SAFETY FILM--STORAGE

ANSI PH4.8-1985 PHOTOGRAPHY (CHEMICALS)--RESIDUAL THIOSULFATE AND OTHER CHEMICALS IN FILM, PLATES, AND PAPERS--DETERMINATION AND MEASUREMENT

V. APPENDICES

Appendix A

STATE OF NORTH DAKOTA
SFN 2050 (01/89)

BEGINNING OF ROLL

NO. _____

SAMPLE

Appendix B

MICROFILM CERTIFICATE
STATE OF NORTH DAKOTA
SFN 2049 (8-88)

The micrographic images on this film are accurate reproductions of records of:

Department	Division
Record Series Title	Record Series Number
Starting With	
Ending With	

and were filmed in the regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Number of Exposures	Reduction Ratio	Date Microfilmed
Roll No.	Name of Operator	Operator Time

Operator's Signature

SUPPLEMENTAL OR RETAKEN FILM		
Reason for Retake		
Roll No.	Date of Retake	Operator's Signature

Remarks

Appendix C

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA
SFN 2049 (07/89)

The micrographic images on this film are accurate reproductions of records of the Bank of North Dakota and were filmed in the regular course of business. The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature _____ Date _____

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed in the regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature________________________ Date____________

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed in the regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature________________________ Date____________

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed in the regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature________________________ Date____________

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and wer[illegible]he regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature________________________ Date____________

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed [illegible]r course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature________________________ Date____________

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed in the reg[illegible] of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Operator's Signature________________________ Date____________

MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed in the regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

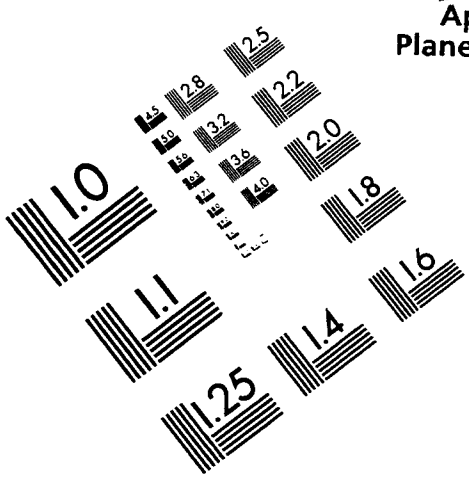
Operator's Signature________________________ Date____________

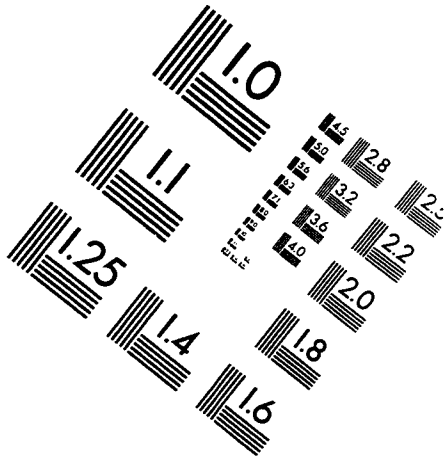
MICROFILM CERTIFICATE - STATE OF NORTH DAKOTA - SFN 2051 (3-89)

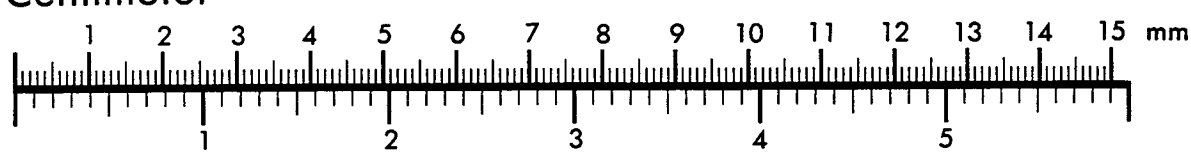
The micrographic images on this film are accurate reproductions of records delivered to the OMB State Records Management Division for microfilming and were filmed in the regular course of business.The photographic process meets standards of the American National Standards Institute (ANSI) for archival microfilm.

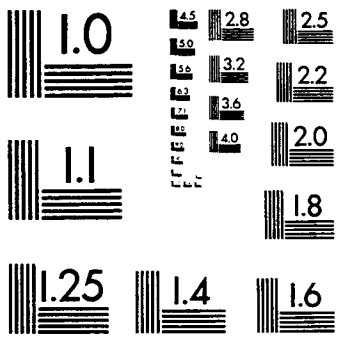
Operator's Signature________________________ Date____________

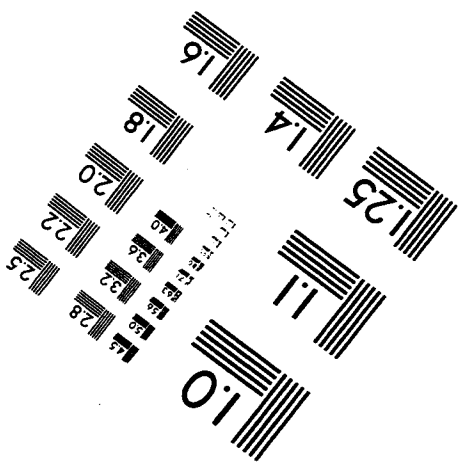
AIIM
Association for Information and Image Management
1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910
301/587-8202

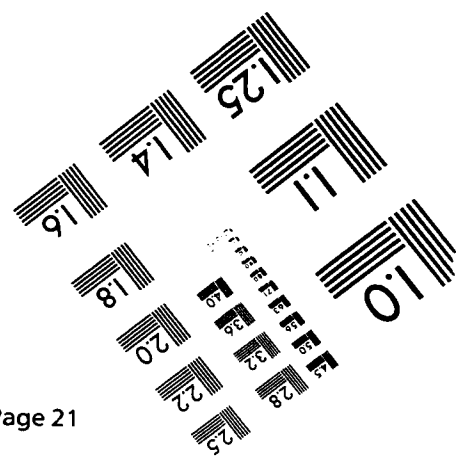




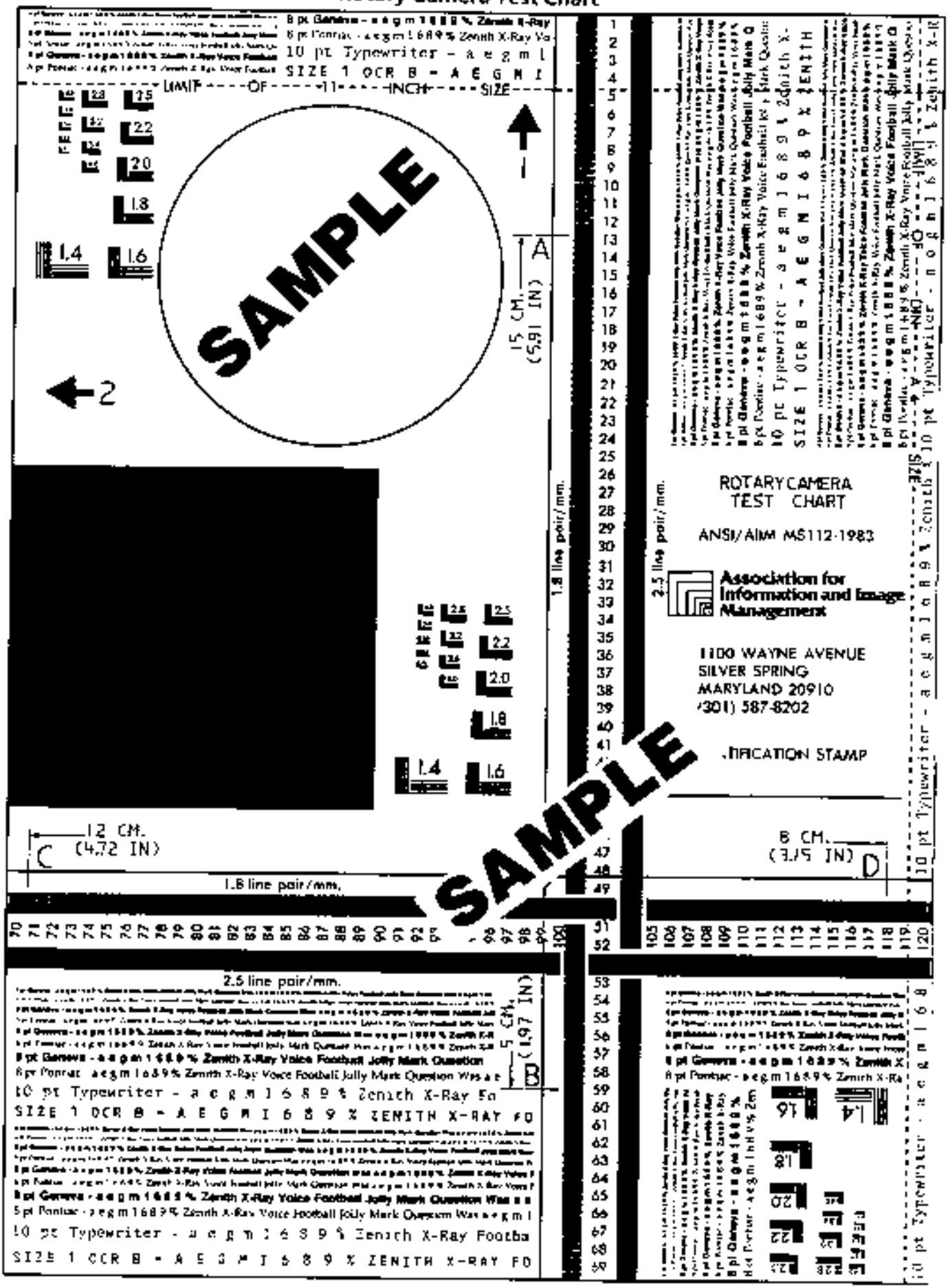








Appendix F
Rotary Camera Test Chart



Appendix G

BLANK SHEET MUST

BE USED FOR

DENSITY TARGETS

MICROFILM DIVIDER

OMB/RECORDS MANAGEMENT DIVISION
SFN 2053 (2/85) 5M

ROLL NUMBER

DESCRIPTION

SAMPLE

Appendix I

RETAKE

OMB/RECORDS MANAGEMENT DIVISION
SFN 2055 (5/85) 3M

SAMPLE

Appendix J

END OF ROLL

NO. _____

STATE OF NORTH DAKOTA
SFN 2050 (01/89)

MICROFILM CERTIFICATE FOR STATE OF NORTH DAKOTA
OMB STATE RECORDS MANAGEMENT DIVISION
SFN 30933 (8-88)

NDCC 54-46.1

Micrographic images on this film are accurate reproductions of records of this agency and were microfilmed in the regular course of business. The photographic process used meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Agency	Record Control Number
Record Series Title	
Operator	Date

MICROFILM CERTIFICATE FOR STATE OF NORTH DAKOTA
OMB STATE RECORDS MANAGEMENT DIVISION
SFN 14367 (8-88)

Appendix L

NDCC 54-46.1

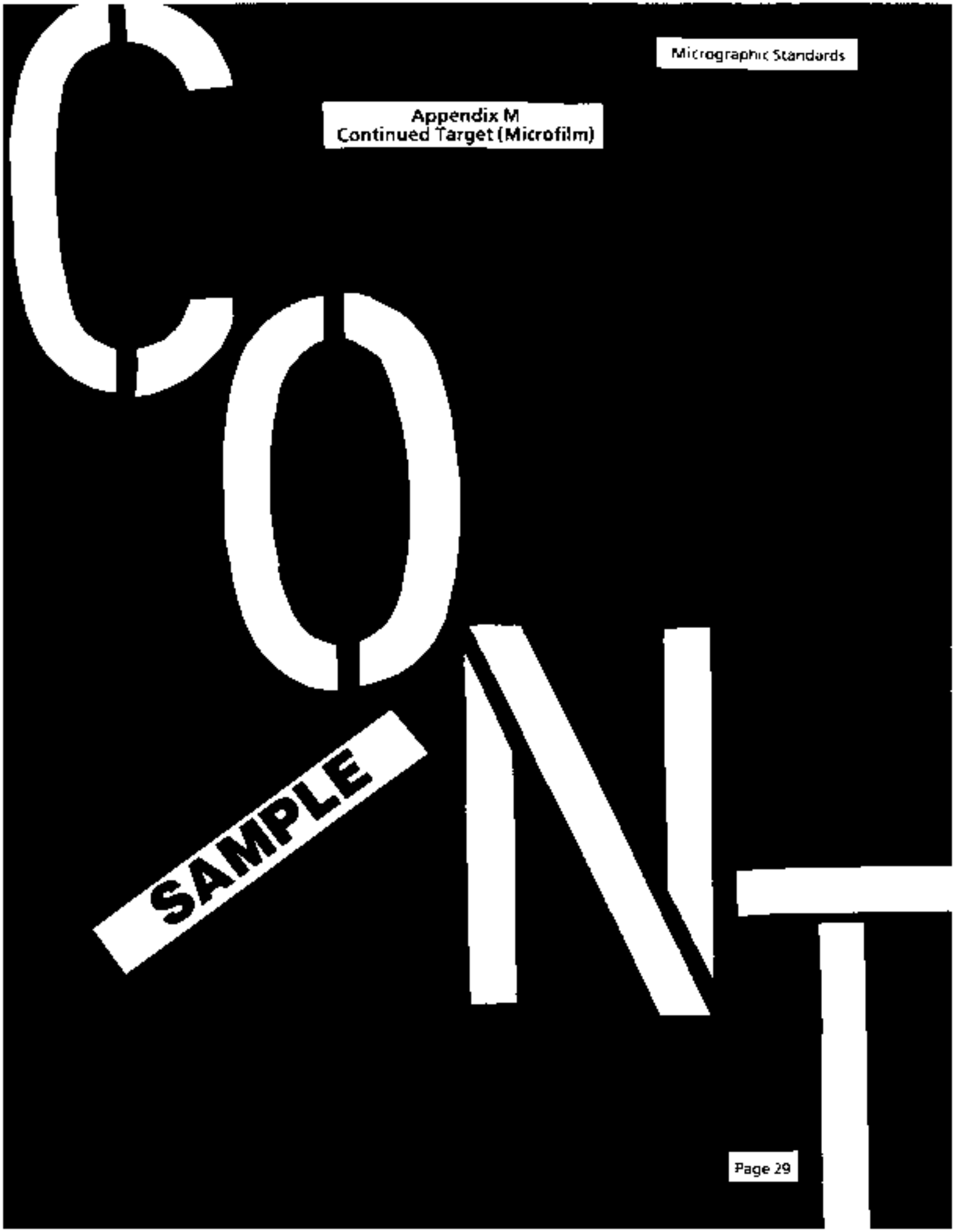
Micrographic images on this film are accurate reproductions of records of this agency and were microfilmed in the regular course of business. The photographic process used meets standards of the American National Standards Institute (ANSI) for archival microfilm.

Agency	Record Control Number
Record Series Title	
Operator	Date

SAMPLE

42X

Appendix M
Continued Target (Microfilm)



Appendix N
End Target (Microfilm)